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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,216	09/18/2003	Hideo Sano	Fukuda Case 42	8302
23474	7590	11/27/2006		
FLYNN THIEL BOUTELL & TANIS, P.C. 2026 RAMBLING ROAD KALAMAZOO, MI 49008-1631				
EXAMINER				
MORILLO, JANEL COMBS				
ART UNIT		PAPER NUMBER		
1742				

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/666,216

Applicant(s)

SANO ET AL.

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 04-000353A (JP'353).

JP'353 teaches a process of extruding an aluminum alloy, with alloying ranges of Si, Mg, Cu, and Mn that substantially overlaps the alloy composition in instant claims 1 and 4 as well as equations 1-4 (see Table below, JP'353 at abstract). JP'353 obtains an extrusion fiber texture and teaches that the existence of transition metals Mn, Cr, Zr, etc. homogeneously deposited in the extrusion ingot inhibit recrystallization, and therefore provide an unrecrystallized fiber texture (see translation, p 3). JP'353 mentions in the examples that the recrystallized layer of the extruded material is 0.1% of the thickness (translation, p 7), which substantially overlaps the presently claimed area% of fibrous structure. JP'353 further teaches homogenizing prior to extrusion at temperatures near 500 °C and cooling at a rate $\geq 200^{\circ}\text{C/hr}$ down to 200 °C or less, extruding at 500 °C and a ratio of ≥ 10 (translation p 1), and solution heat treating after extruding by heating to 495-510°C, and artificially aging at 160-180°C for 2-8 hr (translation p 5) to obtain a T6 temper (translation p 6).

	Si		Mg		Cu		equation 1		equation 2		equation 3		equation 4	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max
JP'353	0.1	1.5	0.2	2	1.5	6	1.8	9.5	0.17	2.55	0.3	3.5	0.75	3.6

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Concerning claim 6, though JP'353 mentions the extrusion of a round bar (translation p 6), and does not specify a hollow section, because JP'353 teaches said alloy has good extrusion properties, it is held to be within the disclosure of JP'353 to extrude said Al-Cu-Mg-Si-Mn alloy into a variety of configurations including hollow and solid sections.

JP'353 does not teach the apparatus limitations of said method claims 1-2, 6. However, applicant has not shown that said apparatus limitations materially effect the presently claimed process steps. Because JP'353 teaches a process with substantially the same steps as presently claimed, complete with an overlapping alloy composition, it is held that JP'353 has created a prima facie case of obviousness of the presently claimed invention.

Concerning claim 5, JP'353 teaches substantially the same process steps of homogenizing, cooling, extruding, solution heating, and aging (see above discussion). Though JP'353 does not specify the cooling rate after solution heating, JP'353 does mention a T6 peak-strength temper is formed, wherein a fast quenching step after solution heating must take place to provide dispersoid elements in a super-saturated state prior to aging. Therefore, it is held to be within the disclosure of JP'353 to fast quench at rates $\geq 10\text{C/s}$, substantially as presently claimed.

3. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'353 in view of JP2002-317255 (JP'255) or JP2001-205329A (JP'329).

JP'353 is discussed in paragraphs above. JP'353 does not teach the apparatus limitations of said method claims. However, the prior art of JP'225 (drawn extrusion of similar 6xxx alloys) teaches substantially similar extrusion apparatus parameters, including a thickness (T) of the product 50-100mm [0018-0019], and a bearing length of a solid die $L \approx T$ (see diagrams).

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Alternatively, JP'329 (also drawn extrusion of similar 6xxx alloys) teaches substantially similar extrusion apparatus parameters, including a thickness (T) of the product 1.4-2.5mm (Table 2), and a bearing length of a solid die $L=H_b=1.5-4.0$ (see [0005], Table 1) (see diagrams).

It would have been obvious to one of ordinary skill in the art to use the apparatus taught by JP'225 or JP'329 when extruding the alloys taught by JP'353 because JP'225 teaches a product with no cracking and excellent strength can be obtained (abstract), or because JP'329 teaches a product without defects and complicated shape can be obtained (abstract).

4. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'353 in view of JP2002-317255 (JP'255) or JP2001-205329A (JP'329).

JP'353, JP'255, JP'329 are discussed in paragraphs above. JP'353 does not teach the apparatus limitations of said method claims. However, the prior art of JP'225 teaches a flow guide is used during said extrusion, and is placed at the front of the solid die (#23, see Fig. 2). JP'225 also teaches an inner circumferential surface is separated from an outer circumferential surface with the bearing of the solid die at a distance of $A \geq 20$ mm (abstract, see also Figures), which meets the instant limitation of $A \geq 5$ mm. JP'225 teaches the thickness of the flow guide 23 is $B=5-25\%$ of the outer diameter of the flow guide (which is substantially equal to the thickness of the billet, see Fig. 2).

JP'329 teaches a flow guide is used during extrusion, and that the thickness of the billet $D=W_f=175$ mm (see [0022]), thickness of the extrusion $T=W_b=1.4-2.5$ mm (Table 2), and because $w_f-w_b=2A$, then $A=86.25-86.8$ mm, which meets the instant limitation of $A \geq 5$ mm. JP'329 teaches length B of flow guide (see Fig. 2) $B=H_f=10$ mm (which is a close approx. of 5%

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of the thickness of the billet), and bearing length $H_b=L=1.5-4.0$ mm (see Table 2), which meets the instant limitation of $L \leq 5T$.

It would have been obvious to one of ordinary skill in the art to use the apparatus taught by JP'225 or JP'329 when extruding the alloys taught by JP'353 because JP'225 teaches a product with no cracking and excellent strength can be obtained (abstract), or because JP'329 teaches a product without defects and complicated shape can be obtained (abstract).

Response to Amendment/Arguments

5. In the response filed on September 18, 2006 applicant amended claims 1, 2, and 5, canceled claim 3 and added new claim 6. Claims 1, 2, 4-6 are currently pending.

6. Applicant's argument that the instant claims have at least one actively recited step has been found persuasive.

7. The instant amendment overcomes the rejections in view of JP'897 or Wade. However, JP'353 is held to be the closest prior art to the currently amended claims.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after


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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ROY KING 
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

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JCM

November 21, 2006

A handwritten signature in black ink, appearing to be 'JCM', is written over the printed name 'JCM'.